

Appl. No.: 10/716,892  
Amdt. Dated: April 4, 2007  
Reply to Office Action of: December 18, 2006

### **REMARKS/ARGUMENTS**

#### **1. Drawings**

The Examiner has previously indicated that the formal drawings previously submitted have been approved.

#### **2. Allowable Subject Matter**

Applicant notes with appreciation the Examiner's allowance of claims 19-21, and further that the Examiner has indicated the subject matter of claims 2, 3, 5, 10 - 15, 17 and 18 are patentable and would be allowable if rewritten in independent form. New claims 22-32 are presented herein on order to put the subject matter of these claims in independent form.

New claim 22 and 23 correspond to claims 2 and 3, new claim 24 corresponds to claim 5, new claim 25 corresponds to claim 10, new claims 26 and 27 correspond to claims 17 and 18, and new claim 32 corresponds to claim 11, all rewritten in independent form with no substantive changes made or intended.

New claim 28 corresponds to claim 12, except that only the recitations of claims 1, 6, and 7 are incorporated, not the recitations of claims 1, 6, 7, 8 and 9. New claim 28 is nonetheless believed to be allowable on the same basis as a re-written claim 12. New claims 29 and 30 correspond to claims 13 and 14 and depend from new claim 28, and are thus believed allowable on the same basis as new claim 28.

#### **3. § 103 Rejections**

Claims 1, 4, 6 - 9 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable for obviousness over U.S. Patent No. 6,600,597 (Beeson) in light of U.S. Patent Publication 2003/0174986 (Forbes, et al).

As applicants noted in a previous response, a principal aspect of the technology disclosed in Beeson is to provide "good overlap" of pump and signal wavelengths "through[out] the gain medium", and to maximize the "size of the gain medium" to provide "greater amplification per length of the gain medium." This is accomplished, according to Beeson, by providing a photonic-crystal based waveguide having a relatively large core diameter, in which both the signal and the pump wavelengths propagate as single modes, and in which the core is provided with gain. Concerning Beeson's emphasis on a large diameter gain medium, see, for example: the Abstract ("[t]he diameter of the gain medium is relatively

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large . . . ."); column 4, lines 6-7 ("[t]he diameter of the gain medium is relatively large"); column 5, lines 44-47 ("[b]ecause the diameter of the gain medium 12 is significantly larger than fundamental mode fibers, greater amplification can occur therein"); column 6, lines 9-10 (citing "the large mode fields available within the gain medium.") Beeson specifically distinguishes the large diameter gain medium of Beeson from prior devices that, according to Beeson, "suffer from poor performance because . . . the size of the gain medium is limited . . ." (column 3, lines 22-26).

From the teaching of Beeson, one of ordinary skill would be motivated to maximize the size of the gain medium, or the volume in which gain takes place, or, as Beeson states, to provide a gain medium having a "relatively large diameter." To apply the use of a hollow-core light guide, such as the type disclosed in Forbes, in the context of the Beeson device not only would generally prevent the main central portion of the waveguide from being part of the gain medium, it would generally prevent the gain medium from having a "relatively large diameter" in the sense disclosed in Beeson, thus reducing the "amplification per length of the gain medium," directly contrary to the teaching of Beeson. Accordingly, Beeson itself teaches away from such combination, not by teaching any undesirability of providing low loss, but by teaching the undesirability of limited size of core gain media. There is thus no prima facie showing of motivation to combine, or of likelihood of success of such combination, when taking the teachings of Beeson and Forbes as a whole.

#### 4. Conclusion

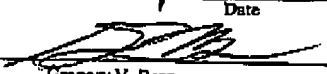
Based upon the above amendments, remarks, and papers of records, applicant believes the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Applicant believes that a one month extension of time is necessary to make this Reply timely, and a request for such with payment of fee is submitted herewith. Should applicant be in error, applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

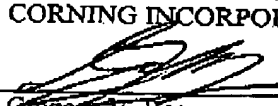
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Please direct any questions or comments to Gregory V. Bean at 607-974-2698.

4 Apr '07  
Date

<p><b>CERTIFICATE OF TRANSMISSION</b> <b>UNDER 37 C.F.R. § 1.8</b></p> <p>I hereby certify that this paper and any papers referred to herein are being transmitted by facsimile to the U.S. Patent and Trademark Office at 571-273-8300 on:</p> <p>4 Apr '07 Date</p> <p> Gregory V. Bean</p> <p>4 Apr '07 Date</p>
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Respectfully submitted,  
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